

REMARKS

Claims 1, 3, 5, 11, 16-18, 20, 25-37 and 39-48 are in this application and are presented for consideration. By this Amendment, Applicant has amended claims 1, 25 and 48.

Claim 25 has been rejected under 35 U.S.C. 102(b) as being anticipated by Paeth et al. (US 5,191,886).

The present invention relates to an electrode belt for electrical impedance tomography. The electrode belt comprises a belt material. Sixteen (16) or more electrodes are on the belt material. The belt material is elastic in some sections so that the electrode belt fully surrounds a test subject to be examined over the circumference of the body. The fact that the belt material is elastic in some sections advantageously allows for a comfortable fit of the belt around the circumference of the test subject's body. The present invention further comprises electrode feed lines. The electrode feed lines are integrated within the belt material. The electrode feed line connects one electrode to another electrode. The length of the electrode feed line between electrodes is greater than the length of the belt material provided between electrodes when the electrode belt is in a non-stretched position. This advantageously provides strain relief for the electrode feed lines and prevents the electrode feed lines from being exposed to high tensile loads while the belt is stretched when the patient puts on the belt. This provides significant advantages in regard to setup and use of the electrode belt. The patient is able to put on the belt without straining the electrode feed lines since the extra length of the feed lines allows the lines to be stretched when the belt is applied. This prevents the electrode feed lines from being disconnected from an electrode when the belt is stretched as the patient applies the belt. This

also avoids the problem of having a tangled mess of wire since the feed lines are already integrated in the belt, which allows for a more comfortable test experience for the test subject.

The present invention also includes an external feed line. The electrode feed line is connected to the external feed line at one or more feed points along the belt material. This advantageously unites the electrode feed lines at a central point in order to establish one or more connection points to an external feed line. This advantageously avoids a tangled wire mess since each electrode does not have to be individually connected by a feed line. The prior art as a whole fails to provide such features or advantages.

Paeth et al. discloses an electrode strip 10. The electrode strip 10 includes an elongate substrate 14, a plurality of spaced apart conductive leads 16 that extend along one surface of the substrate 14 and an insulating cover layer 17 that insulates all but a portion of each conductive lead 16. One end of the electrode strip 10 includes a connector 22 which is configured to mate with a cable extending to a monitoring device 20. Each lead 16 extends from connector 22 to an electrode site 26. The leads 16 are electrically coupled to the body of a person via a plurality of conductive gel pads 38 associated with the various electrode sites 26.

Paeth et al. fails to teach or suggest the strain relief feature highlighted in claim 25. In the present invention the length of an electrode feed line between one electrode and another electrode defines an electrode feed line portion. An electrode holder portion is defined by a distance between two respective electrodes spaced apart along the electrode holder. The length of the electrode feed line portion of the present invention is greater than the electrode holder portion when the electrode holder belt is in a non-stretched state. Paeth et al. fails to teach or

suggest such features. At most, Paeth et al. suggests individual conductive leads 16 that lead to a respective electrode site 26. Paeth et al. does not mention anything about the strain relief feature provided in the claimed combination. In fact, as clearly shown in Figure 2 of Paeth et al., the conductive leads 16 do not connect one electrode site 26 to another electrode site 26. In contrast to Paeth et al., each electrode feed line of the present invention connects one electrode to another electrode. The length of the electrode feed line between electrodes is greater than the length of the electrode holder between electrodes when the electrode belt is in a non-stretched state. This advantageously provides significant strain relief for the electrode feed lines so that the electrode feed lines are not exposed to high strain when the patient applies the belt. Paeth et al. fails to provide such a strain relief advantage since Paeth et al. does not suggest that the length of the conductive leads 16 between electrode sites 26 is greater than the length of substrate material 14 located between one respective electrode site 26 and another electrode site 26. As such, the prior art as a whole teaches a different approach and does not suggest the features of the present invention. Accordingly, Applicant respectfully requests that the Examiner favorably consider claim 25 as now presented.

Claims 1, 3, 5 and 11 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Paeth et al. in view of Bornn (US 5,353,793).

Bornn discloses a stretchable harness-like apparatus that enables physiological parameters of a patient to be measured while the patient is ambulatory or stationary. The apparatus has a chest band, shoulder bands and an abdominal band that houses respiration, pulse and electrocardiogram sensors. The shoulder bands are attached to the chest band and all the

bands are worn on the body under a low tension. The apparatus is used in conjunction with on-body monitoring electronics. The apparatus is also radio-linked to remote alerting modules.

Paeth et al. fails to teach or suggest the combination of an electrode feed line that connects one electrode to another electrode. As clearly seen in Figure 2 of Paeth et al., each conductive lead 16 extends to a respective electrode site 16. In contrast to Paeth et al., each electrode feed line of the present invention is connected to more than one electrode. Further, Paeth et al. does not suggest the combination of an electrode feed line having a length between electrodes that is greater than the length of belt material between electrodes when the electrode belt is in a non-stretched position. This advantageously provides significant advantages in regards to use and setup of the electrode belt. The extra length of the electrode feed line between electrodes advantageously provides strain relief for the electrode feed line when the electrode belt is stretched as the patient applies the belt. This ensures that the electrode feed line does not get disconnected from the electrodes as the patient puts on the belt. Paeth et al. does not mention any such strain relief function as featured in the claimed combination. As such, the prior art as a whole teaches a different approach and does not suggest the features of the present invention.

Bornn fails to provide any motivation for the combination of an electrode feed line having a length between electrodes that is greater than the length of belt material between electrodes when the electrode belt is in a non-stretched state. At most, Bornn teaches a stretchable harness-like apparatus having a chest band, shoulder bands and an abdominal band. However, Bornn does not suggest connecting two or more electrodes with an electrode feed

line that has a length between electrodes that is greater than the length of belt material between the electrodes. In the present invention, the fact that the length of the electrode feed line between electrodes is greater than the length of belt material between the electrodes is significant since it provides substantial advantages regarding use and setup of the electrode belt. When the electrode belt of the present invention is put on a patient, the longer length of the electrode feed lines prevents strain on the electrode feed lines as the lines are stretched. Bornn fails to lead the person of ordinary skill in the art to such features or advantages. Further, Bornn does not disclose an electrode feed line that connects two or more electrodes as claimed in the present invention. As such, the prior art as a whole teaches a different approach and does not provide any motivation for the features of the claimed combination. Accordingly, Applicant respectfully requests that the Examiner favorably consider claim 1 as now presented and all claims that depend thereon.

Claims 16-18 and 48 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Paeth et al. in view of Bornn, and further in view of Watson et al. (US 4,308,872). Although Watson et al. teaches a method and apparatus for monitoring respiration volumes by continuously measuring variations in the patient's chest area, the references as a whole fail to suggest the combination of features claimed. Specifically, Paeth et al. and Hornn fail to suggest and fail to teach the combination of an electrode feed line that connects one electrode to another electrode and having a length between electrodes that is greater than the length of belt material between electrodes. The references do not suggest the invention and therefore all claims define over the prior art as a whole.

Applicant has amended claim 48 according to the allowable subject matter noted in the rejection. Specifically the features of claim 20 have been added to claim 48. It is Applicant's position that claim 48 is allowable as presented.

Favorable action on the merits is requested.

Respectfully submitted
for Applicant,



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